Minutes of the Booster Supervisor Meeting held on 08.05.2012

Present: A. Findlay, G. Kruk, A. Lombardi, B. Mikulec, E. Ovalle, R. Rumolo, J. L. Sanchez Alvarez, R. Scrivens, J. Tan, R. Wegner

1. General

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2. Linac2 (from Richard)

R.Scrivens →A.Lombardi (24/04->01/05)

Technical stop

All work completed
Beam could be restarted a couple of hours ahead of the schedule (i.e. about 18:00)

Beam from the source had an intensity dip during the pulse. But running higher gas flow and longer pulses on ZERO cycles, the source was retrained to a good condition. The source gas flow was reduced further during the week.

On Saturday there were make radiation alarms, with the intensity fluctuating. This was with very high intensity on the Linac, but indeed the radiation was abnormal and fluctuating. When checking the machine the radiation had returned to the normal low level and it was not followed any more.

With some experimental tuning, the LHC50 intensity out of the PSB could be improved. Should be tested more completely on the booster side.
MD: LTB.QFW30+QDW40

R Scrivens, 27/04/2012

Using the beam on the LHC50_DB_A user, which at present in the production beam for LHC, the quadrupoles in the LTB line were tuned empirically.

Only the beam intensity out of the PSB was taken (no emittance measurements). The user was present 2 times in the supercycle, and the average was taken of these two cycles.

The results are shown in Figure 1, they show that at least 10% can be gained on the LHC50 ns cycle by adjusting this quadrupole.

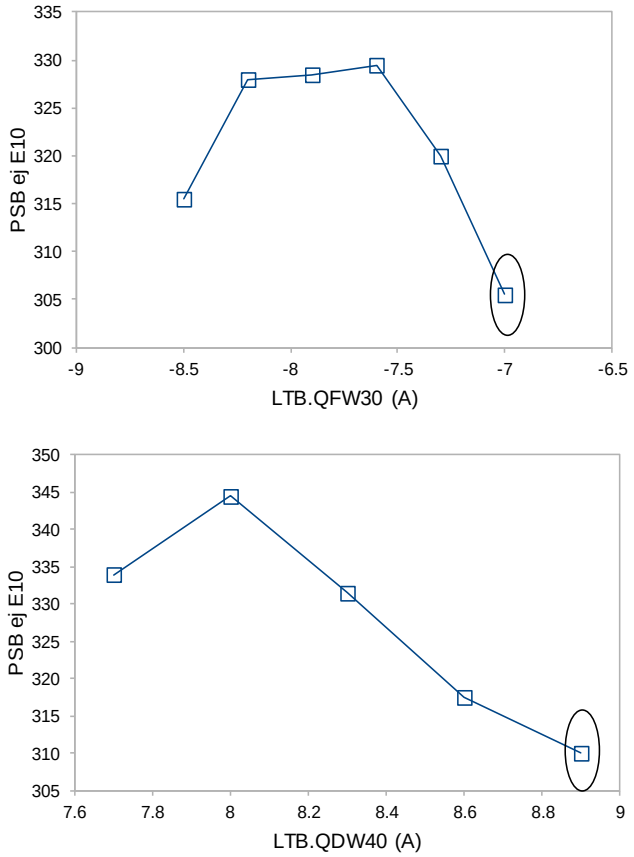

Figure 1. Intensity out of the PSB, as a function of the quadrupole setting.

A.Lombardi → R. Wegner

The Linac2 has been running quite well last week apart from Sunday morning when the intensity starts to fluctuate. Monday morning, the tube of buncher 1 amplifier has been exchanged. Also, the amplitude of buncher 2 seems to drop from time to time which causes a small intensity drop. RF Experts are investigating.

3. PS Booster (from Alan)

A.Findlay → J.L. Sanchez Alvarez

Wednesday 2/5/12

A 1 hour intervention by the BI team to replace the head amplifiers for the pick-ups in BTP10 & BTP30 solved the bad acquisition problem, and we could measure the correct trajectories again. The supposed misalignment of the pick-up in BT20 for R1 & R2 remains a problem, so the trajectories are still unusable here.

With the improved ejection trajectories, it was possible to see that the jumps in the R1 & R2 ejection trajectories seemed to be due to BT2.SMV20 fluctuating by 100A (for ~25000A). The PiPO and specialist J-M. Cravero worked on the problem replacing and auxiliary PSU and filter, but noticed the problem disappeared when the OASIS cable was disconnected. It appeared that this was inducing noise into the SMV and was left disconnected.

Thursday 3/5/12

Tests with BR2.DVT3L4 showed that there was an unexpected influence on the orbit, so this was followed up by Jean Francois and the specialist.

The RF guys and the Controls specialists worked to be sure that all the new knobs etc that were created for the FINEMET cavity tests were saved into the archives and references, which is now the case.

In the evening a RF tank tripped in L2 due to LA1.VGP01, the operator took charge and the beam back after 10mins.

At 00H15 the BT4.BVT10 tripped and required an intervention by PiPO. The beam was delivered with only 3 rings until he replaced a DAC card which fixed the problem around 02H00.

Friday 4/5/11

There was a brief PS intervention in the morning, so we checked that nobody needed PSB access, which was the case.

J-M Cravero confirmed that the problems experienced with BT2.SMV20 had disappeared since the OASIS cable had been disconnected, so we agreed to continue like that for the weekend. He is investigating putting an isolation amplifier in between this cable and the equipment, but this will be done next week when he can keep a close eye on it. The ejection trajectories seemed much more stable and so we were convinced this had been the problem.

SFTPRO was required for the first time in a while, and when re-loaded needed some adjustment to bring it back to specification. While trying to do PPM copy from CNGS, we started to get unexpected errors when doing an "acquire", which we reported to the INCA support team. The support team joined us in

the CCC and could see that, for an unknown reason, there were a number of parameters that were not used in the SFTPRO cycle that showed up in the Online check. As a temporary solution, they proposed that we cloned the cycle so that it could be saved into reference for safety, then we could do a PPM copy from CNGS knowing we could recover the situation. They are investigating the source of the problem.

To continue with the FINEMET cavity tests, a 160MeV Flat Cycle was cloned and then set up so as to have R4 available as well as R2.

At around 01H00 the BT.BHZ10 dropped out and would not be reset, so the operator went to investigate, but needed the PiPO to rearm the circuit breaker.

The BT2.SMV20 was noted to be in local and have the wrong aqn value compared to the command. The operator switched back to remote and after a little re-training the septum started to behave once again.

The beams were back by 02H40.

The TOF user was suffering from instability in injected intensity, so Jose worked to stabilize it.

Saturday 5/5/12

During the afternoon the BI3.QNO60 started to drop out and was reluctant to stay on. By 16H30 the PiPO was on site to take a look and by 19H30 had changed to the spare power supply and R3 was back in order.

Jose observed that with only R3 beam extracted there was a large reflected signal on BT.UES30 & 40, which put into question how reliable the ejection trajectory display could be. This would also prevent the use of the automatic beam steering program.

After the SPS commented upon the intensity fluctuations they had observed for CNGS, Jose increased the voltage on LI.CBU02 in LINAC2, as he suspected this to be the source of the problem.

Sunday 6/5/12

At 06H45 the Linac Supervisor was called in to investigate the intensity fluctuations from the LINAC, as LHC would soon be needing to fill. She suspected the matching between the RFQ and Tank 1 of the Linac, and after an hour she had improved the stability.

The MD beam for the PS on cycle MD_BEAM4PS_PSB had been requested on Friday but was not within spec when re-loaded, so Abdel re-loaded the cycle and started to bring it back to the required specification.

At 10H00 the Linac Sup was called again due to intensity fluctuations returning, she suspected LI.CBU02 and retuned onsite to investigate. The investigation continued, but at 14H00 the fluctuation disappeared without explanation. Around 17H00 there were signs that the intensity stability problem may come back to haunt us, but the operator and Linac supervisor were keeping an eye on the situation.

Monday 7/5/12

The LINAC supervisor & team was contacted first thing to investigate further the intensity fluctuations that were still dogging the LINAC, as the users were heavily perturbed. Replacement of a tube on a buncher by the LINAC RF team was hastily carried out, as they were concerned that this would die and take the amplifier with it. After a 25 minute beam break, the beam was back and the fluctuations seemed to have returned to their "normal" values. As the problems had come and gone, the equipment was to be kept under surveillance for the next 24 hours.

Archives were proving difficult to reload and would fail due to a simple max/min error. The specialist was called and the issue reported.

The MD_BEAM4PS_PSB cycle was worked on, as this cycle came back from archive with too large bunch length (180ns in place of 160ns), and too small Eh (~3 in place of 13) and Ev(3 in place of 8). It was not obvious why and work continues.

At 11H15 a micro glitch took down the C04 & C16 cavities in the PSB, and quick intervention by the cavity specialist was required to convince us that they came back up OK.

Work had gone on all week setting up a 160MeV Flat cycle for R4 tests with the C02 & FINEMET cavities, despite difficulties copying the required equipment parameters, by Monday afternoon the C02 was setup in open loop with the Digital Beam Control, and we were ready to test with the FINEMET cavity.

Tuesday 8/5/12

LINAC intensity stability…

Beams:

FINEMET_FlatCycle: a 160 MeV flat cycle set up for R4 and used for FINEMET cavity tests in parallel with the C02. (MD5)

MD_BEAM4PS_PSB: this cycle came back from archive with too large bunch length (180ns in place of 160ns), and too small Eh (~3 in place of 13) and Ev(3 in place of 8). It was not obvious why and work continues.

4. Isolde (from Emiliano)

E.Piselli → P.Fernier

HRS:

Beam to users on Tuesday. Power glitch early in the morning…and 2 vacuum glitch in the target sector. I spend some time to restart all the target but, at the end, users could take beam till Wednesday morning.

On Thursday we have delivered radioactive beam to REX…1 day earlier than foreseen. No major problem till Friday afternoon, when one of the separator magnets stopped working. Magnet expert came and after many test we decided to exchange the teslameter. On Monday we have checked and it works fine. According to expert the problem was elated to the old calibration of the teslameter.

Then on Friday evening we have had vacuum problem in the target, due, most probably, to some outgassing of the target. We have slowly heated up the target over night and, only on Saturday lunch time, users could get back beam.

Some problem with one of the REX RF amplifier on Sunday and with vacuum in the night between Sunday and Monday.

GPS: nothing to report…

5-INCA

- Greg will continue to clean the DB.
- 3 Tools to do online check. We should have only one in Septembe.